

desired disk on the disk table in a clockwise direction or in a counterclockwise direction so that it is placed at a predetermined recording/reproducing position, and the movement mechanism for vertically moving the disk recording/reproducing unit are connected to a single drive source through the clutch mechanism. Within this arrangement, they are in one body in appearance. As a result, there is no necessity of using a plurality of drive sources as in the prior art, and the number of parts is reduced to much extent. Thus, this multi-loaded disk drive arrangement greatly contributes to reduction in the manufacturing cost. Further, since the disk table can be rotated in a clockwise direction or in a counterclockwise direction at the time of selecting a desired disk, it is possible to quickly move a desired disk up to a predetermined recording/reproducing position, advantageously resulting in improvement in the operability in loading disks.

In the second aspect, since, in addition to the disk recording/reproducing unit vertically moving cam, a cam mode detecting cam for operating the cam mode detector for controlling the drive source and the lock cam for locking the disk table when the disk recording/reproducing unit is in a recordable/reproducible state are formed, the quality and the reliability of the multi-loaded disk drive arrangement are advantageously considerably improved.

### BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings:

FIG. 1 is a view showing the outline of the configuration of a conventional multi-loaded disk drive arrangement;

FIG. 2 is a perspective view showing the outside appearance of a multi-loaded disk drive arrangement according to an embodiment of this invention;

FIG. 3 is a perspective view showing the disk recording/reproducing unit and the loading mechanism unit which serve as the essential part of the embodiment of this invention;

FIGS. 4A and 4B are views for explaining raised and fallen state of the disk recording/reproducing unit serving as the essential part of this invention;

FIG. 5 is a perspective view showing the loading base of FIG. 3;

FIG. 6 is a longitudinal cross sectional view showing the clutch section of FIG. 3 in an enlarged manner;

FIGS. 7A and 7B are perspective views for explaining the cam wheel of FIG. 3, viewed from upper side and lower side, respectively;

FIGS. 8A and 8B are views showing the operations of the respective parts corresponding to the vertically changing cam diagram of the cam wheel; and

FIGS. 9A to 9I, FIGS. 10 and 11 are views for explaining the operations of the disk recording/reproducing unit and the loading mechanism unit.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

An embodiment of a multi-loaded disk drive arrangement according to this invention will now be described in detail with reference to FIGS. 2 to 11.

FIG. 2 is a perspective view showing the appearance of a multi-loaded disk drive arrangement according to this invention, FIG. 3 is a perspective view showing the disk recording/reproducing unit and the loading mechanism which serve as the essential part of this invention, FIGS. 4A and 4B are views for explaining the raised

and fallen states of the disk recording/reproducing unit serving as the essential part of this invention, FIG. 5 is a perspective view showing the loading base of FIG. 3, FIG. 6 is a longitudinal cross sectional view showing the clutch section, FIGS. 7A and 7B are perspective views for explaining the cam wheel of FIG. 3, FIGS. 8A to 8E is a view showing the operation of respective portions corresponding to the vertically changing cam diagram of the cam wheel, FIGS. 9A to 9D are views showing a cam mode at the time of the loading operation, and FIGS. 10 and 11 are views for explaining the operations of the disk recording/reproducing unit and the loading mechanism unit.

### Configuration of the appearance

In FIG. 2, a multi-loaded disk drive arrangement 1 according to this invention is of a structure in which an opening and closing cover 3 is hinged on one end portion of the upper surface portion 2a of a casing 2 so that it can be opened and closed. In order to observe or see through from the above disks 4 loaded within the disk drive arrangement 1, a substantially transparent circular window portion 3a is formed in the opening and closing cover 3.

On the front surface 2b of the casing 2, a control section for controlling this disk drive arrangement 1 is arranged.

A circular opening 2c is formed in the upper surface portion 2a of the casing 2. Within a space of the casing 2 opened through the circular opening portion 2c, a disk table 5 in the form of disk on which a plurality of disks 4 are loaded is arranged so that it is rotatable about the shaft 6 by drive means of a loading mechanism unit 30 (see FIG. 3) which will be described later.

Further, the disk table 5 includes an inner tooth gear portion 5a formed over the entire circumference inside the outer circumference of the disk table 5 as indicated by the partial cross sectional portion at the left and lower portion of the figure. An idler 41 (see FIG. 3) on which a friction member sticks can come into contact with the inner tooth gear portion 5a in a manner that it does not slip thereon, and can be away from the inner tooth gear 5a. It is to be noted that, without forming the inner tooth gear portion 5a, the inside portion of the outer circumference of the disk table 5 may be formed with a friction member, e.g., rubber, etc. to allow the idler 41 to come into contact therewith, and the outer circumferential portion of the idler 41 adapted to come in contact with the inner tooth gear portion 5a may be of a gear structure.

The disk table 5 is of a structure such that, when the idler 41 comes into contact with the inner tooth gear portion 5a, it can be rotated in both a clockwise direction (the direction indicated by the arrow A1) and a counterclockwise direction (the direction indicated by the arrow A2).

On the upper surface of the disk table 5, disk mount portions 5A to 5E for mounting thereon disks 4 equidistantly over the same circumference are formed. These disk mount portions 5A to 5E are in the form of double circular depressed portion, having an outside diameter slightly larger than that of the disk 4 to be mounted. From a practical point of view, they are formed so that disks 4 of two kinds of outside diameters, e.g., the outside diameter of 8 cm (5D1 in the figure) and the outside diameter of 12 cm (5D2 in the figure) can be mounted thereon. It is to be noted that the shape of the disk